

REMARKS

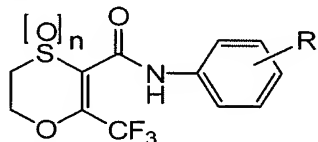
Applicants gratefully acknowledge withdrawal of the previous provisional obviousness-type double patenting rejection based on copending Application No. 10/576,153 and the previous written description rejection under 35 U.S.C. 112, first paragraph. Applicants also acknowledge that the previous obviousness rejection discussed below has been maintained.

Rejection under 35 U.S.C. 103

Claims 19-22, 28, and 33 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the Korean language paper by Hahn et al, *Han'guk Nonghwa Kakhoechi* (translated as *J. Korean Soc. Agric. Chem. Biotechol.*), 44 (3), 191-196 (2001). Applicants thank the Examiner for providing an English translation with the current Final Office Action. Applicants again respectfully traverse.

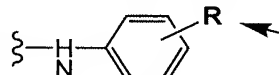
Although the heart of the rejection appears to reside in the sufficiency of the data Applicants presented by way of several Declarations under 37 C.F.R. 1.132, Applicants will, for the convenience of the Examiner, again summarize the structural features that distinguish their claimed compounds from the compounds of the reference before addressing the sufficiency of their data.

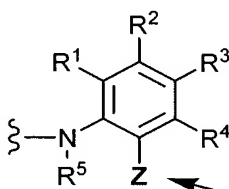
As has been fully discussed in Applicants' previous Amendments, the Hahn et al paper discloses fungicidal dihydro-1,4-oxathiin carboxanilides of the formula



in which **n** is 0, 1, or 2 and **R** is one or two substituents selected from a relatively narrowly defined group of substituents, including hydrogen, methyl, trifluoromethyl, ethyl, isopropyl, methoxy, isopropoxy, methylthio, fluoro, chloro, bromo, nitro, and cyano. See Table 1 at pages 194-195 (and the translation at pages 14-15). The Hahn et al paper describes fungicidal activity for some of the disclosed compounds (see Table 2 at page 196 (and the translation at page 16)) but expresses a distinct preference for compounds in which group **R** is a meta-substituted isopropoxy or isopropyl substituent (see translation at page 15 with respect to compounds 21 and 40; also see original Abstract). Applicants maintain that the relatively limited teachings of the Hahn et al paper would not lead those skilled in the art to their claimed invention.

When comparing Applicants' claimed compounds with those of the Hahn et al paper, it is convenient to focus on the nature and placement of the substituents on

the phenyl ring, specifically group R in the  moiety of the

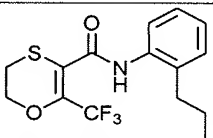
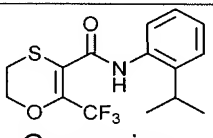
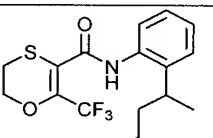
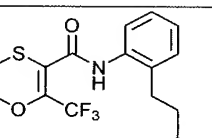
reference and group Z in the  moiety of Applicants' claimed

compounds. [Substituents R¹, R², R³, R⁴, and R⁵ are relevant only when considering compounds of the reference having a second R group and can otherwise be ignored in the following discussion.] Because group R of the Hahn et al paper – if present at all (i.e., as a group other than hydrogen) – is limited to relatively simple groups such as alkyl, alkoxy, halogen, and the like, Applicants again submit that the reference does not teach nor even suggest embodiments of Applicants' claimed invention in which Z represents Z² (i.e., cycloalkyl or bicycloalkyl groups) or Z⁴ (i.e., substituted C₂-C₂₀-alkenyl or C₂-C₂₀-alkynyl groups or, combined with R⁴, a carbocyclic or heterocyclic ring). Consequently, one need only consider whether the Hahn et al paper would lead those skilled in the art from group R of the reference to Applicants' group Z³. However, even a cursory inspection reveals that the Hahn et al paper does not disclose or suggest compounds in which its group R could be an unsubstituted alkyl group having at least five carbon atoms (or even a chlorine-substituted or cycloalkyl-substituted alkyl group) as specified for Applicants' group Z³.

Applicants therefore again submit that these structural differences are fully consistent with the patentability of their invention. Furthermore, Applicants submit that the data they have presented are also consistent with the patentability of their invention.

Applicants again refer to the established principal that "when an applicant demonstrates substantially improved results . . . and states that the results were unexpected, this should suffice to establish unexpected results in the absence of evidence to the contrary." *In re Soni*, 54 F.3d 746, 751, 34 U.S.P.Q.2d 1684, 1688 (Fed. Cir. 1995) (emphasis added). Applicants maintain that they have provided persuasive objective evidence of patentability that has not been rebutted by evidence to the contrary.

As an aid to explaining their data, Applicants summarize in the following table the test results reported in the previously presented Declarations of Dr. Ulrike Wachendorff-Neumann and Dr. Arnd Voerste. The table shows the structures of the tested compounds, the organisms and application rates used in the tests, and the observed test results. (Further details about the test procedures are provided in the Declarations.) Each of the comparison compounds is characterized by a phenyl ring having a three-carbon alkyl substituent (one of which is linear and the other of which is branched), whereas each of the inventive compounds is characterized phenyl ring having a five-carbon alkyl substituent (each of which is branched but not at the same carbon atom). All other structural features are the same for all four compounds.

Test	Efficacy (%)			
	 Comparison Cmpd ⁽¹⁾	 Comparison Cmpd 53 (Hahn et al)	 Inventive Cmpd 39	 Inventive Cmpd 102
<i>Sphaerotheca</i> (cucumber) 100 ppm (W-N D1) ⁽²⁾	—	10	—	98
<i>Venturia</i> (apple) 100 ppm (W-N D1) ⁽²⁾	—	57	—	100
<i>Uromyces</i> (bean) 100 ppm (W-N D2) ⁽³⁾	—	10	95	—
<i>Alternaria</i> (tomato) 500 ppm (Voerste) ⁽⁴⁾	0	0	95	—
<i>Sphaerotheca</i> (cucumber) 500 ppm (Voerste) ⁽⁴⁾	0	0	94	—

⁽¹⁾ Comparison compound (similar to but not identical to Hahn et al)

⁽²⁾ W-N D1 – From first Wachendorff-Neumann Declaration

⁽³⁾ W-N D2 – From second Wachendorff-Neumann Declaration

⁽⁴⁾ Voerste – From Voerste Declaration

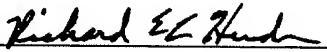
Applicants again point out that tests were carried out against four different organisms using two different application rates. In view of these differences, those skilled in the art would expect different results. Notwithstanding such expectations, Applicants' inventive compounds always exhibited very high efficacy in all of the tests, whereas the comparison compounds did not. Stated differently, the results show that in every single test – regardless of the organism and regardless of the application rate – the inventive compounds of their claimed invention exhibit dramatically greater efficacies than the comparison compounds, despite only modest differences in their structures. Despite these robust results, the Final Office Action at page 3-5 challenges the sufficiency of Applicants' data because of an absence of statistical analyses and a perceived anomaly in the results for the *Sphaerotheca* tests described in Dr. Wachendorff-Neumann's first Declaration and in Dr. Voerste's Declaration. Applicants respectfully submit that the Final Office Action has overly zealous in discounting their data.

Applicants first address the asserted deficiencies in the *Sphaerotheca* test data, which they assume is based on the slightly greater activity observed for comparison compound 53 at 100 ppm (see first Wachendorff-Neumann Declaration) than observed for the same compound at 500 ppm (see Voerste Declaration). Although Applicants are not absolutely certain of causation, it should be noted that the experiments were not carried out under identical conditions or on the same days. More specifically, the solvents used in the test formulations were not identical in that Dr. Wachendorff-Neumann's first Declaration specified a mixture of equal parts acetone and dimethylacetamide, whereas Dr. Voerste's Declaration specified only dimethylacetamide. As a result, some variation in test results is not surprising. However, even if one were to assume – solely for the sake of discussion – that *Sphaerotheca* test results could ordinarily vary by as much as 10% (or even more), the differences in efficacies for comparison compound 53 and inventive compounds 39 and 102 are so great that those skilled in the art would conclude that the inventive compounds exhibit surprisingly and unexpectedly enhanced efficacies compared to the comparison compound. In view of the consistently high efficacies found using the other experiments described in the three Declarations, Applicants submit that even without a strict statistical analysis, those skilled in the art would conclude that the compounds of their claimed invention are patentably distinct from the compounds taught by the reference.

Applicants therefore again respectfully submit that their claimed invention is not rendered obvious by the Hahn et al paper.

In view of the preceding amendments and remarks, allowance of the claims is respectfully requested.

Respectfully submitted,

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